DHSS Information Technology Environment Standards
Version: April 2012

A. Introduction

The purpose of this document is to outline the information technology (IT) environment at Delaware Health and Social Services (DHSS). The document is intended to serve as a component of RFPs, RFIs, and contracts for IT procurement. It describes the environment for prospective vendors to determine the degree that their products meet DHSS' environment standards. DHSS has final approval of information technology infrastructure.

DHSS must comply with Delaware's Department of Technology and Information (DTI) policies and standards:

- ° http://dti.delaware.gov/information/standards-policies.shtml

Please note that these standards are living documents and subject to revision.

B. Mainframe Environment

DHSS mainframe applications run on a three-way processor, IBM System z10 mainframe located at the Biggs Data Center in New Castle County, DE. System support is provided under contract to DHSS by Delaware Department of Technology and Information (DTI). The mainframe production system is not available for 24x7 applications.

- Operating system: z/OS
- Communications manager: CICS TS
- Security management: ACF2
- Third generation language: ADS Plus (no new development)
- Development software: Enterprise COBOL for z/OS
- Change control software: Serena ChangeMan
- Middleware: DataDirect Shadow z/Direct (ODBC) and z/Services (web services)
- Backup: Flash Copy
- Scheduler: CA ESP

C. Client Server Environment

The following are currently in use for the client server environment:

- Development software (no new development): Centura Team Developer, PowerBuilder, Borland Delphi
- Change control software: Microsoft Visual Source Safe. **Note**: Conversion to Team Foundation Server is planned for 2012.

D. Web Application Environment

DHSS standard platform for new development is browser based applications utilizing Microsoft Visual Studio .Net.

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The DHSS .NET Framework Template must be used for new/custom DHSS Web Applications and can be obtained from DHSS IRM Base Technologies. Note that the template currently supports Web Forms and not Model View Controller (MVC) Framework.

- Application server: Microsoft Internet Information Server (IIS)
- Application framework: Microsoft .NET
- Application development software: Microsoft Visual Studio .NET/C#
- Data Modeling: Microsoft Visio
- Change control software: Microsoft Visual Source Safe. **Note**: Conversion to Team Foundation Server is planned for 2012.

DHSS and State Web standards can be found at:

- o DHSS .net Manual: http://www.state.de.us/dhss/dms/irm/files/dhssdotnetmanual.pdf
- o DHSS Web Policy: http://www.state.de.us/dhss/admin/files/pm26.pdf
- o State Common Look and Feel: http://dti.delaware.gov/pdfs/pp/WebsiteCLF.pdf

E. Database Environment

- Mainframe DBMS: DB2
- Client Server DBMS: Microsoft SQLServer

- State DBMS Standard: http://dti.delaware.gov/pdfs/pp/DatabaseManagementSystems.pdf
    Note: While the State standards allow several database engines. DHSS only support the use of DB2 on the mainframe and SQLServer on Windows Servers. Use of any other database engine requires the permission of the DHSS Manager of Base Technologies and Director of IRM.
- DHSS Database Naming Standards- http://www.dhss.delaware.gov/dhss/dms/irm/files/database_naming_standards.pdf
- The SQLServers for most applications reside in a dedicated DMZ

F. Network Environment

- WAN connectivity: Verizon's Transparent LAN Services (TLS) minimum 10Mbs, Verizon DSL, Comcast Cable
- Standard protocols: IPv4, Ethernet, 802.11
- LAN connectivity: Cisco switching
- Storage: Fiber Channel, iSCSI backend storage
- Authentication: Microsoft Active directory
- Operating systems: Microsoft Desktop OS, Microsoft Server OS
- Virtual Software: VMWare
- Server Hardware: Blade
- Citrix Architecture: XenApp, Secure Gateway, Web Interface
- Backup: CommVault
- File Exchange: SFTP, WinSCP, two-factor authentication
- Document Sharing: Windows SharePoint Services (intranet only)
- Imaging: IBM FileNet P8

- Generic Three Tiered Architecture Diagram: see Figure #1

G. Desktop Environment

- Application software: Microsoft Office, McAfee Anti-Virus, Jolly Giant QWS 3270 Secure, Citrix Client, Adobe Reader, Internet Explorer
- Ad-Hoc Reporting Tools: Crystal Reports, SQLServer Reporting Services
- Printers: Citrix Compatible see:
  - http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA0-8465ENW.pdf
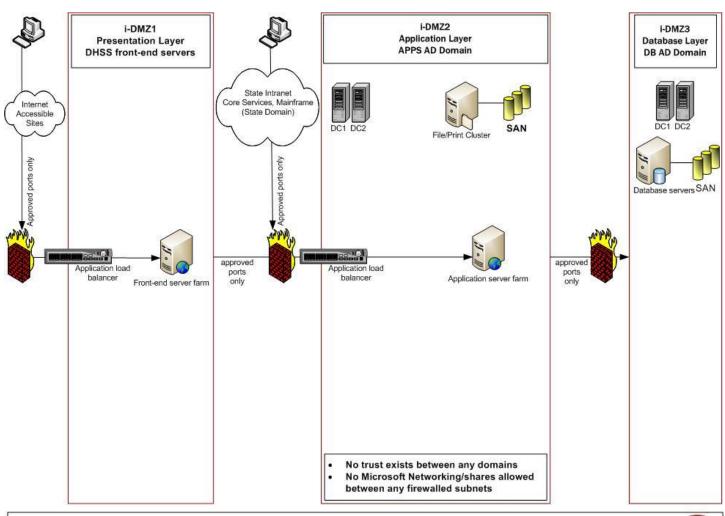
H. Voice Environment

- Telephone System Architecture: Avaya S87xx Enterprise IP-Connect
- Telephone Terminals: 2400 Series
- Circuits: PRI digital PSTN connectivity, 911 Centrex (2)
- Voice Mail: Avaya Modular Messaging
- Call Recording: Witness
- Call Center: Avaya CMS, Avaya IQ
- Land and Cellular Carrier: Verizon
- Pager Carrier: USAMobility

I. Security Environment

- E-Mail Encryption: Ironport
- Facility Access: Honeywell ProWatch Access Control
- Video Security: Fusion Remote
- Desktop & Laptop Computer Security: CheckPoint EndPoint Security Suite

FIGURE #1

GENERIC THREE TIERED ARCHITECTURE DIAGRAM

i-DMZ1
Presentation Layer
DHSS front-end servers

Internet Accessible Sites

Approved ports only

Application load balancer

Front-end server farm

State Intranet Core Services, Mainframe (State Domain)

Approved ports only

approved ports only

i-DMZ2
Application Layer
APPS AD Domain

DC1 DC2

File/Print Cluster

SAN

Application load balancer

Application server farm

- No trust exists between any domains
- No Microsoft Networking/shares allowed between any firewalled subnets

approved ports only

i-DMZ3
Database Layer
DB AD Domain

DC1 DC2

Database servers SAN

Drawing Name: generic 3-tier architecture
Creation Date: 02/18/2009
Revision Engineer: Mike Brown
File Name: generic-3tier-architecture.vsd

Description: dhss generic 3-tier architecture
Revision Date:8/10/2009

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